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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/016,870	12/14/2001	Stephen Arthur Anderson	01-754	5982

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EXAMINER

BOYD, JENNIFER A

ART UNIT

PAPER NUMBER

1771

DATE MAILED: 08/13/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/016,870	ANDERSON, STEPHEN ARTHUR	
	Examiner	Art Unit	
	Jennifer A Boyd	1771	

-- The MAILING DATE of this communication appears on the cover sheet with the corresponding address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 December 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s) _____.
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 1 page. 6) ☐ Other:

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. Claim 10 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
2. Claim 10 recites the limitation "said member" in line 17. Claim 10 recites the limitation "said mesh matrix" in line 23. There is insufficient antecedent basis for this limitation in the claim. For the purposes of examination at this time, the Examiner will assume the Applicant means "a blanket" when referring to "said member" and the "flame arresting matrix" when referring to "said mesh matrix".

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1 – 2, 4, 7 – 14 and 16 – 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gooliak (US 2003/0060107 A1).

Gooliak is directed to a thermal management system utilizing a composite thermal radiation barrier (Abstract) used to control effects of heat generated by engines, exhaust components, furnaces, any auxiliary power unit, fuel-burning heaters and other combustion equipment (page 1, [0002]).

As to claim 1, Gooliak teaches a thermal blanket wrap, equated to Applicant's "fire retarding device", comprising a *tube 32* which represents the high temperature portion to be insulated and *layer 34* is a wrapped flexible metallic woven or knit mesh layer for example InconelTM metal mesh (page 4, [0033] and see Figure 2). Due to the fact that Gooliak teaches that the blanket wrap can be used to encase an exhaust manifold (page 4, [0033]), the Examiner equates the tube 32 to Applicant's "hot casing". Additionally, the Examiner equates the layer 34 to Applicant's "flexible member". According to the *Complete Textile Glossary*, a *mesh* is a broad term for fabric characterized by open spaces between the yarns. Therefore, it would be reasonable to assume that the mesh, or "flexible member", has a volume being more porous than dense. It should be noted that it has been held that the recitation that an element is "adapted to" perform a function is not a positive limitation but only requires that ability to so perform. It does not constitute a limitation in any patentable sense. *In re Hutchison*, 69 USPQ 138. The Examiner has given "adapted to cover at least a portion of the hot casing" patentable weight at this time, but it is highly recommended to amend the claim language.

As to claim 2, Gooliak teaches that the thermal blanket wrap, equated to Applicant's "fire retarding device", has a *split line 42* which is sealed using a number of *fasteners 44* (page 4, [0033] and see Figure 2). The presence of fasteners implies that the thermal blanket wrap can be removed.

As to claim 4, Gooliak teaches that the entire *layer 34*, equated to Applicant's "flexible member", comprises a metal mesh (page 4, [0033]), therefore, the "arresting fibrous network".

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As to claim 7, Gooliak teaches in Figure 2 that the *layer 34*, or “flexible member”, is directly adjacent to the *tube 32* which represents the high temperature portion to be insulated (page 4, [0033]).

As to claim 8, Gooliak teaches that heat resistant insulation blanket of the invention can be used for various applications including portions of an aircraft, such as the combustion, turbine and tailpipe sections of the turbine engines which must be isolated from the rest of the aircraft by a properly rated fire wall (page 1, [0003]).

As to claim 9, Gooliak teaches *layer 34*, equated to Applicant’s “flexible member”, is a wrapped flexible metallic woven or knit mesh layer for example InconelTM metal mesh (page 4, [0033]).

As to claim 10, Gooliak teaches a thermal blanket wrap, equated to Applicant’s “fire retarding device”, comprising a *tube 32* which represents the high temperature portion to be insulated and *layer 34* is a wrapped flexible metallic woven or knit mesh layer for example InconelTM metal mesh (page 4, [0033] and see Figure 2). Due to the fact that Gooliak teaches that the blanket wrap can be used to encase an exhaust manifold (page 4, [0033]), the Examiner equates the tube 32 to Applicant’s “hot casing”. Additionally, the Examiner equates the *layer 34* to Applicant’s “blanket”. It is known in the art that woven and knitted fabrics have a plurality of voids between the intersection points of warp and weft yarns or wales and courses respectively. It should be noted that it has been held that the recitation that an element is “adapted to” perform a function is not a positive limitation but only requires that ability to so perform. It does not constitute a limitation in any patentable sense. *In re Hutchison*, 69 USPQ 138. The Examiner has

given “adapted to cover at least a portion of the hot casing” patentable weight at this time, but it is highly recommended to amend the claim language.

As to claim 11, Gooliak teaches in Figure 2 that the *layer 34*, or “blanket”, is directly adjacent to the *tube 32* which represents the high temperature portion to be insulated (page 4, [0033]).

As to claim 12, Gooliak teaches a thermal blanket wrap, equated to Applicant’s “fire retarding device”, comprising a *tube 32* which represents the high temperature portion to be insulated and *layer 34* is a wrapped flexible metallic woven or knit mesh layer for example InconelTM metal mesh (page 4, [0033] and see Figure 2). Due to the fact that Gooliak teaches that the blanket wrap can be used to encase an exhaust manifold (page 4, [0033]), the Examiner equates the tube 32 to Applicant’s “hot casing”. Additionally, the Examiner equates the *layer 34* to Applicant’s “member”. It is known in the art that woven and knitted fabrics have a plurality of voids between the intersection points of warp and weft yarns or wales and courses respectively. It should be noted that it has been held that the recitation that an element is “adapted to” perform a function is not a positive limitation but only requires that ability to so perform. It does not constitute a limitation in any patentable sense. *In re Hutchison*, 69 USPQ 138. The Examiner has given “adapted to cover at least a portion of the hot casing” patentable weight at this time, but it is highly recommended to amend the claim language.

As to claim 13, Gooliak teaches in Figure 2 that the *layer 34*, or “member”, is directly adjacent to the *tube 32* which represents the high temperature portion to be insulated (page 4, [0033]).

As to claim 14, Gooliak teaches that *layer 36*, equated to Applicant's "insulative thermal blanket", is a wrapped primary insulation blanket layer which can be made of mineral fibers such as SFB 200 or SFB 250 available from Carbon Cloth Technologies (page 4, [0033] and page 3, [0027]). As shown in Figure 2, *layer 36* wraps around *layer 34*.

As to claim 18, Gooliak teaches that the thermal blanket wrap, equated to Applicant's "fire retarding device", has a *split line 42* which is sealed using a number of *fasteners 44* (page 4, [0033] and see Figure 2). The presence of fasteners implies that the thermal blanket wrap can be removed.

As to claim 19, Gooliak teaches *layer 34*, equated to Applicant's "member", is a wrapped flexible metallic woven or knit mesh layer for example Inconel™ metal mesh (page 4, [0033]).

As to claims 1, 10, 12, 16 and 17, Gooliak discloses the claimed invention except for that the filaments are arranged to define voids of a maximum size throughout said fibrous network wherein the void size is chosen to limit flame propagation of an ignited fluid through the member as required by claims 1 and 12, the filaments intersecting to form a plurality of voids being smaller than the maximum size throughout the matrix as required by claim 10, the flame arresting matrix has a percent-density of between 10 and 30% as required by claim 16 and the voids do not exceed a maximum size in at least a direction extending substantially outwardly from the hot casing as required by claim 17. It should be noted that void size and density is a result effective variable. For example, as void size increases and density decreases, the material becomes more flexible and flame propagation becomes more limited. It would have been obvious to one having ordinary skill in the art at the time the invention was made arrange the

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filaments to define voids of a maximum size throughout said fibrous network wherein the void size is chosen to limit flame propagation of an ignited fluid through the member as required by claims 1 and 12, the filaments intersecting to form a plurality of voids being smaller than the maximum size throughout the matrix as required by claim 10, the flame arresting matrix has a percent-density of between 10 and 30% as required by claim 16 and the voids do not exceed a maximum size in at least a direction extending substantially outwardly from the hot casing as required by claim 17, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). In the present invention, one would have been motivated to optimize the void size and density to create a member that is appropriately flexible while limiting flame propagation.

5. Claims 1, 3, 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nevin (GB 2,266,051 A).

Nevin is directed to an anti-fire structure commonly used for fire protection for various locations in aircrafts (Abstract).

As to claim 1, Nevin teaches an anti-fire structure, equated to Applicant's "fire retarding device", comprising metal structures such as metal wool or metal tangles alternating in a carpet in a layered fashion (Abstract and see Figures 1, 5 and 6). One of the layers of metal wool or metal tangles are equated to Applicant's "flexible member". The metal wool or metal tangled structure would inherently comprise voids creating a porous structure. Nevin teaches that the

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anti-fire structure can be rolled onto a fuel tank, equated to Applicant's "hot casing", with the carpet side facing the fire to quench a burning fire (Abstract, see Figure 1 and page 6).

As to claim 1, Nevin discloses the claimed invention except for that the filaments are arranged to define voids of a maximum size throughout said fibrous network wherein the void size is chosen to limit flame propagation of an ignited fluid through the member as required by claim 1. It should be noted that void size and density is a result effective variable. For example, as void size increases and density decreases, the material becomes more flexible and flame propagation becomes more limited. It would have been obvious to one having ordinary skill in the art at the time the invention was made arrange the filaments to define voids of a maximum size throughout said fibrous network wherein the void size is chosen to limit flame propagation of an ignited fluid through the member as required by claim 1, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). In the present invention, one would have been motivated to optimize the void size and density to create a member that is appropriately flexible while limiting flame propagation.

As to claim 3, Nevin teaches that the "flexible member" is made of metal wool or metal tangles (Abstract). The use of material comprising metal tangles implies a randomly intertwined material.

As to claims 5 and 6, Nevin teaches that in the anti-fire structure, equated to Applicant's "fire retarding device", metal structures such as metal wool or metal tangles horizontally divide a carpet into layers of alternating carpet sections and metal layers. See Figures 1, 5 and 6. Each

portion of carpet separated by the metal layers is a considered to be Applicant's "insulative thermal blankets". Carpets are known in the art to be insulating materials.

6. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gooliak (US 2003/0060107 A1) in view of Nevin (GB 2,266,051 A).

Gooliak teaches that heat resistant insulation blanket of the invention can be used for various applications including portions of an aircraft, such as the combustion, turbine and tailpipe sections of the turbine engines which must be isolated from the rest of the aircraft by a properly rated fire wall (page 1, [0003]).

Gooliak fails to teach that the flammable fluid which can incite a fire is jet fuel.

Nevin teaches an anti-fire structure comprising layers of metal and carpeting. Nevin teaches that the structure is commonly used for fire protection for various locations in aircrafts (Abstract). Figure 1 teaches the extinguishing of spilt liquids such as petrol, oil and kerosene burning to flames by use of the anti-fire structure (Figure 1 and page 6).

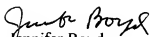
It would have been obvious to one of ordinary skill at the time the invention was made that the fire inciting liquid can be some form of jet fuel as suggested by Nevin when using the thermal blanket wrap of Gooliak motivated by the fact that burning fuel is extremely hazardous and a likely cause of a fire on an airplane.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer A Boyd whose telephone number is 703-305-7082. The examiner can normally be reached on Monday thru Friday (8:30am - 6:00pm).

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terrel Morris can be reached on 703-308-2414. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.


Jennifer Boyd
August 8, 2003

